

## WHAT IS CLAIMED IS:

1. A thermo-reversible, crosslinkable elastomer in which a reaction between acid anhydride group and hydroxyl group is utilized for crosslinking.

2. A thermo-reversible, crosslinkable elastomer in which a reaction between carboxyl group and vinyl ether group is utilized for crosslinking.

3. A thermo-reversible, crosslinkable elastomer in which a reaction between halogenated alkyl group and tertiary amino group is utilized for crosslinking.

4. A thermo-reversible, crosslinkable elastomer in which a reaction between isocyanate group and phenolic hydroxyl group is utilized for crosslinking.

5. A thermo-reversible, crosslinkable elastomer in which a reaction between azlactone group and phenolic hydroxyl group is utilized for crosslinking.

6. A thermo-reversible, crosslinkable elastomer in which a dimerization reaction of nitroso group is utilized for crosslinking.

7. A thermo-reversible, crosslinkable elastomer in which a reaction between nitrogen-containing heterocycles is utilized for crosslinking.

8. A thermo-reversible, crosslinkable elastomer comprising, as side chains, at least two members selected from the group consisting of an aromatic ring having a substituent in which a substituent constant  $\sigma$  of Hammett's rule is a positive value, an aromatic ring having a substituent in which the  $\sigma$  is a negative value, an unsubstituted aromatic ring in which the  $\sigma$  is 0, and a nitrogen-containing heterocycle.

9. The thermo-reversible, crosslinkable elastomer as claimed in claim 8, comprising, as the side chains, at least two members selected from the group consisting of an aromatic ring having a substituent in which the  $\sigma$  is a positive value, an aromatic ring having a substituent in which the  $\sigma$  is a negative value, and a nitrogen-containing heterocycle.

10. The thermo-reversible, crosslinkable elastomer as claimed in claim 8 or 9, wherein the substituent in

which the  $\sigma$  is a positive value is at least one member selected from the group consisting of halogen group, phenyl group, cyano group, nitro group, acetyl group and carboxyl group.

11. The thermo-reversible, crosslinkable elastomer as claimed in any one of claims 8 to 10, wherein the substituent in which the  $\sigma$  is a negative value is at least one member selected from the group consisting of alkyl group, methoxy group, phenoxy group, hydroxyl group and amino group.

12. The thermo-reversible, crosslinkable elastomer as claimed in any one of claims 8 to 11, comprising, as side chains, an aromatic ring having a substituent in which the  $\sigma$  is a positive value, and an aromatic ring having a substituent in which the  $\sigma$  is a negative value.

13. The thermo-reversible, crosslinkable elastomer as claimed in any one of claims 8 to 11, comprising, as side chains, an aromatic ring having a substituent in which the  $\sigma$  is a positive value, and a nitrogen-containing heterocycle.

14. The thermo-reversible, crosslinkable elastomer as claimed in any one of claims 8 to 13, further comprising a carbonyl-containing group as a side chain.

15. The thermo-reversible, crosslinkable elastomer as claimed in any one of claims 1 to 14, wherein at least one glass transition temperature is not more than 25°C.

16. A rubber composition comprising at least one of the thermo-reversible, crosslinkable elastomers as claimed in claims 1 to 15.

17. The rubber composition as claimed in claim 16, further comprising elastomers other than the thermo-reversible, crosslinkable elastomers.

18. A rubber-bonded body comprising a layer containing the composition as claimed in claim 16 or 17, and a layer containing a vulcanized rubber composition, bonded to the former layer.

19. The rubber-bonded body as claimed in claim 18, wherein an elastomer main-chain in the layer containing the composition as claimed in claim 16 or 17 and the layer

containing the vulcanized rubber composition has repeating units formed of at least one identical monomer component.

20. A rubber structure comprising the rubber-bonded body as claimed in claim 18 or 19 in at least a part thereof.